

AN EXPERIMENTAL INVESTIGATION TO DETERMINE
THE EFFECTIVENESS OF REMEDIAL MEASURES
IN CORRECTING TYPEWRITING ERRORS

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Master of Arts in Education

by

George Philip Grill

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AN EXPERIMENTAL INVESTIGATION TO DETERMINE
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G. P. G.

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MILLERS FALLS

OLD DEERFIELD BOND

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

"Practice makes perfect." This maxim has many times been repeated, but will practice bring the acquisition of a skill, especially in typewriting? A modification of this maxim might be, "Practice makes perfect when intelligently directed."¹ Perfection can be obtained only under the right conditions. From the article, "Practice Makes Perfect," by Botsford in the Business Education World, March, 1934, Clem refers to these right practice conditions.²

Skill learning, therefore, is one of the simplest types of learning since a skill can be gained primarily through the right kind of practice. This skill can be developed best under practice conditions rather than from application work. If skill is to develop rapidly and effectively, the learner must be allowed to experiment and to take chances even though it may result in errors in the copy. The process of typewriting is more important than the material

¹Jane E. Clem, Techniques of Teaching Typewriting (second edition; New York: McGraw-Hill Book Company, Inc., 1955), p. 99.

²Ibid., pp. 99-100.

typed during the skill-developmental stage.³

Lessenberry has listed seven major techniques in learning to typewrite that must be developed, reconstructed, and improved throughout the entire learning period. These techniques are as follows:

1. Levels of response.
2. Stroking.
3. Holding the eyes on the copy.
4. Manipulative control.
5. Relaxation.
6. Quiet, almost motionless hands and arms.
7. Right mind-set.⁴

It is the teacher's responsibility to emphasize the techniques in the classroom practice so that they will be integrated into the student's typewriting form.

The writer wishes to pursue the hypothesis that if these techniques are learned thoroughly and practiced in the classroom from the beginning, the degree of errors will be less as time elapses. The causes of most errors were traced by the writer to ineffective adaptation of these fundamental techniques. Therefore, correct techniques should be stressed and maintained throughout the instructional periods.

In the past, errors have been considered as ends in themselves when they are symptomatics of some difficulties

³Ibid., p. 100.

⁴D. D. Lessenberry, Methods of Teaching Typewriting (Cincinnati: South-Western Publishing Company, 1949), pp. 2-6.

of adaptation of the skill. A symptom must be studied in relation to the learner. Therefore, the first procedure to know about errors was the typist's reactions during the typewriting exercise. This feeling might give a clue to the cause of the error and aid both the teacher and the student in deciding upon the effective remedy.⁵

I. THE PROBLEM

Statement of the problem. It was the purpose of this study (1) to determine the types of individual typewriting errors; (2) to make studies of individuals to determine causes of errors; (3) to eliminate these errors by corrective measures; and (4) to evaluate the effectiveness of the corrective measures in relation to the errors at the beginning of the study to the errors at the end of the study.

Importance of the study. The use of the typewriter has become universal. Today, the enrollment in typewriting is greater than that for any other business subject, and the tendency seems to be that it will increase still more.⁶

⁵Clem, op. cit., p. 193.

⁶Walter S. Monroe (ed.), Encyclopedia of Educational Research (New York: The MacMillan Company, 1950), p. 116.

Sweeney said that:

The study of typewriting errors, causes, and remedies is considered to be important for two reasons: first, the position which commercial studies, and typewriting in particular, occupy in the curriculum; and second, the tremendous importance of analyzing and eliminating errors in achieving success in typewriting.⁷

According to Sweeney,⁸ the importance of error analysis was stressed by Book, one of the outstanding authoritative sources on the psychology of skill learning, with particular reference to the acquisition of skill in typewriting. He wrote:

. . . errors and the mental interference which produces them, play such an important role in the process of learning to typewrite that the cause, prevention and cure for each should be described in detail.

It was the writer's belief that errors tend to break down a student's ability to make a particular movement correctly. Therefore, it was essential that the errors be discovered and checked, or eliminated before they become habitual.

II. DEFINITIONS OF TERMS USED

Many classifications of typewriting errors have been differentiated, but for purposes of this study, the terms

⁷Mary A. Sweeney, "A Critical Study of Typewriting Errors" (unpublished Master's thesis, University of California, Los Angeles, 1952), p. 2.

⁸Ibid., p. 3.

listed are defined as follows:

Manipulative error. Manipulative error was interpreted as meaning an error in the mechanical operation of the typewriter that does not involve key stroking.

Reading error. Reading error was interpreted as an error made due to inattention or omission of a word, phrase, or line.

Keyboard error. Throughout the report, the term "keyboard error" shall be interpreted as meaning the unintentional misstroking of a key which may or may not result in a deviation from the copy.

Rhythm. The term "rhythm" shall be interpreted as regular, continuous stroking at a rate of speed which enables the typist to allot enough time to each stroke.

The other terms utilized in this report follow the accepted pattern of general usage in the field of business education.

CHAPTER II

REVIEW OF THE LITERATURE

Much has been written in regard to the problem of accuracy in typewriting, but only a brief summary of the work of experimenters on problems very closely related to the one at hand will be given here.

Speed and accuracy were goals in typewriting and the association of fingers, letters, and keys was a basic fundamental.¹ Lessenberry said that:

No teacher of typewriting objects to the development of speed by his students, no matter how emphatic he may be in support of the goal of accuracy. Similarly, no teacher who believes in speed first objects to the achievement of accuracy. On the contrary, all of us believe in speed with accuracy even though we are divided on how to achieve this commonly accepted goal.²

DeVaughan reported:

If the time allotted to speed drills during the first-year of training could be devoted to additional practice in the areas of inefficiency, the trainee would develop more skill in these areas.³

¹John Comstock Evans, Touch Typewriting For All (New York: Barnes and Noble, Inc., 1948), p. 79.

²D. D. Lessenberry, "Some Debatable Issues in the Teaching of Typewriting," The National Business Education Quarterly, XII (December, 1943), 59.

³Imogene Spiegle DeVaughan, "An Experiment to Determine the Contribution of Speed Practice During the First Year Typing to the Development of Typing Skills," (unpublished Master's thesis, Appalachian State Teachers College, Boone, 1950), p. 11.

In attempting to define the meaning of accuracy, Clem cited that failure in any of the listed six phases to the problem would produce inaccuracy:

1. Conformity to the rules that declare what is and what is not an error.
2. Need of conformity to the best accepted forms for typewritten material.
3. The performance of the operator, which is dependent upon the technique used.
4. The procedure, which is dependent upon the work habits of the typist.
5. The reading habits of the typist.
6. The actual writing or stroking of the keys.⁴

Literature on the classification of errors. There

have been a number of research studies made on the analysis of typing errors but only a few of these are available in print.⁵ Sweeney⁶ reported that the first important classification of typewriting errors, causes, preventive and corrective measures was evolved by Book as a result of a study he undertook to determine the psycho-physical habits involved in the study of typewriting. The purpose of this study was to determine what takes place in the conscious

⁴Jane E. Clem, Techniques of Teaching Typewriting (second edition; New York: McGraw-Hill Book Company, Inc., 1955), p. 194.

⁵Personal Correspondence of the Writer, letter from D. D. Lessenberry, January 21, 1958.

⁶Mary A. Sweeney, "A Critical Study of Typewriting Errors" (unpublished Master's thesis, University of California, Los Angeles, 1952), p. 6.

mind as skill in typewriting was acquired. His primary interest was in the psychology of skill; nevertheless, a detailed classified list of typewriting errors resulted.

A few years later, Morrison conducted a study of errors classified by businessmen.⁷ "The most significant finding of the study is that errors differ decidedly in seriousness and that, as a consequence, any plan of grading that considers errors equally important or gives to all types a common penalty (such as a deduction of ten words) is grossly incorrect."⁸

Lessenberry has done extensive work in the classification of typewriting errors. He says that classification is the first step in analyzing errors.⁹ His study of more than 63,000 errors¹⁰ reported in 1928 was an attempt to isolate the major types of errors that were made by students writing at various levels of speed. Since the errors came from teachers from several states, and it was impossible to study the errors in relation to the typist, the study has

⁷Noble B. Morrison, "Evaluation of Errors in Typing," The National Business Education Quarterly, I (December, 1932), 41-43.

⁸Clem, op. cit., p. 195.

⁹D. D. Lessenberry, Methods of Teaching Typewriting (Cincinnati: South-Western Publishing Company, 1949), p. 13.

¹⁰D. D. Lessenberry, Error Chart (Syracuse: L. C. Smith and Corona Typewriters, Inc., 1928).

very limited value.¹¹ His study was a listing of misstrokes. His findings were not published in a research paper, but an error analysis chart based on his study was published by one of the typewriting companies.¹²

Typewriting errors may be classified under four headings according to Lessenberry:

1. Errors in stroking technique.
2. Errors in basic knowledge or in understanding.
3. Errors in manipulation.
4. Errors in reading copy.¹³

Blackstone and Smith have done valuable work in error analysis and remedial instruction. They have succeeded in constructing exercises for remedial instruction.¹⁴

Literature on ignoring errors. On this subject, Lessenberry wrote:

Errors should be ignored when the purpose of the practice is to push into new speed areas. To "feel out" a new speed before stroking patterns have been worked out is important in spite of errors. The

¹¹Personal Correspondence of the Writer, letter from D. D. Lessenberry, January 21, 1958.

¹²Personal Correspondence of the Writer, letter from R. D. Cooper, January 16, 1958.

¹³D. D. Lessenberry and T. James Crawford, Manual for 20th Century Typewriting (fifth edition; Cincinnati: South-Western Publishing Company, 1947), pp. 24-26.

¹⁴E. G. Blackstone and Sofrona L. Smith, Improvement of Instruction in Typewriting (second edition; New York: Prentice-Hall, Inc., 1949), pp. 351-462.

only consideration to be given to them is that a check may be made to see that they do not exceed two or three or possibly four a minute. When pushing for a new speed, whether through timed writings or through class drills, more than two or three errors a minute should be taken as a signal that the student is overwriting, that the drill is too intense. . . .

Errors made in drill typing should be ignored since the purpose of drill is to modify typewriting behavior. The purpose may be to push for a new speed, or to build control, or to emphasize related knowledge, such as how to express numbers. When typing is done with such a purpose, errors should be ignored.

Another learning situation where errors can be ignored safely is the experimental tryout--the first practice--of new problem material. Specifically, when typing problem letters in a new style or when typing the first tabulated reports or the first rough drafts, the purpose of the practice is to provide learning experiences. It is imperative that the student and the teacher recognize the difference between learning and testing and that practice be done in accordance with the known purpose.¹⁵

Clem said "that there are certain times when errors should be ignored; there are times when they should be studied as the basis for remedial practice; and there are times when they should be erased and corrected."¹⁶

Literature on studying errors. The most common procedure in the past was for the teacher to check the student's papers, mark the errors made; then when the number of errors became too great, the teacher warned the

¹⁵Ibid., pp. 21-22.

¹⁶Clem, op. cit., p. 202.

student by telling him that he was making too many typewriting errors.

Errors should be studied when the typewriting rate is slower than the student's forced speed. This enables the errors to be studied to determine the kinds that persist. Errors will multiply as soon as the student realizes that he is making too many of them. Therefore, the more the teacher talks about errors and the more the student thinks about them, the more errors the student will make.¹⁷

In the past many error studies have been conducted. However, most of them have been limited to keyboard errors--the striking of one letter for another.

In the beginning lessons of the first semester of typewriting, most of the errors should be only observed and ignored. They are accidental or incidental and have no meaning, for the most part.¹⁸ However, remedial measures should follow immediately upon recognition of faulty technique.

What shall we do about errors? According to Clem¹⁹ Lessenberry has answered the question thus: "There are times when nothing should be done about them; then, there are times

¹⁷Lessenberry and Crawford, op. cit., p. 22.

¹⁸Personal Correspondence of the Writer, letter from D. D. Lessenberry, January 21, 1958.

¹⁹Clem, op. cit., p. 203.

when a careful analysis should be made of errors to understand the defects in technique of which the errors are symptoms."

There are five things that Clem has offered that can be done to eliminate errors:

1. Remove the fear of making errors.
2. Stop talking so much about making errors when the aim is increased stroking.
3. Talk more about improved technique and better control.
4. Stop playing up the number of errors.
5. Give more intelligent instruction on the cause and cure of errors.²⁰

Typewriting authorities have come to the conclusion from experience and years of study that the problem of errors should be treated from the broad view that most errors are in technique. Therefore, the modern point of view must be accepted by teachers that skill is the aim of their instruction and that skill is always the product of technique.

Since the teacher can give very little time to personal remedial instruction without jeopardizing the progress of the entire class, it is very important that each student learns to analyze his own errors, discover the remedies for his difficulties, and drill purposefully to improve his typewriting skill--under the guidance and

²⁰Ibid., p. 204.

direction of the teacher. The most feasible plan for remedial work or error elimination is the joint teacher-student activity.²¹

Error charts have been used extensively in typewriting literature for many years, and their usage has been urged by many typewriting authorities. These charts benefit the teacher and the student in discovering which errors or difficulties tend to be persistent and in analyzing the causes. However, a psychological factor should be considered in using the error charts. A task of this nature might prove very discouraging to poor students and a waste of time to students who are progressing satisfactorily. The use of error charts in the beginning, places too much stress upon accuracy.²²

Blackstone and Smith present a simplified chart which should meet the needs of the typewriting teacher. These authors said:

It may be thought that it takes considerable time to fill out such a chart, but that is not necessarily true. The desired result is for the persistent errors to be revealed, and that means that they will show up in almost any short period (2 or 3 minutes) of typing. The teacher need only tell the students at some time during a class period, or even twice a week, to mark on the chart the

²¹John L. Rowe, "Remedial Instruction in Typewriting," The Journal of Business Education, XXVIII (April, 1953), 278.

²²John L. Rowe, "Remedial Instruction in Typewriting," The Journal of Business Education, XXVIII (March, 1953), 232.

errors made on the last twenty lines of practice. The persistent errors will show up.²³

This is demonstrably true for the Keyboard Error Chart which they recommend. The Technique Error Chart which they offer contained 43 types of errors, with a total of 169 subdivisions. Nevertheless, there were possibly some errors that were not listed. This particular chart was designed to be checked by the teacher and the student. This type of chart for recording errors is complex and takes considerable time on the part of the teacher and the student.²⁴

Diagnostic error charts should not be condemned; however, for they have valuable data for analyzing errors. The instrument itself is all right, but the interpretation involved makes it incorrect.²⁵

Limitations of previous studies. In the literature of the field of typewriting, there is a wealth of information on the nature of typewriting, and on suggestions for error evaluation and elimination. However, few of these studies are available in print to the student seeking positive, purposeful data applicable to the student's immediate study.

²³Blackstone and Smith, op. cit., p. 357.

²⁴John L. Rowe, "Remedial Instruction in Typewriting," The Journal of Business Education, XXVIII (March, 1953), 233.

²⁵Ibid., p. 232.

Many studies in the past have examined only the errors of the student and not the errors with relation to the student. These studies, therefore, would have limited value.

Literature in this area seems to indicate that less attention to errors in the completed work and more attention to the student at work should be the desired goal of type-writing research.

CHAPTER III

METHOD OF PROCEDURE

During the winter term, 1957-1958, the writer evaluated the possibilities of studying several first year typewriting classes which were conveniently located and representative of an average high school. For securing data for this experiment, the writer decided to use for the experimental basis, two high schools, Appalachian High School, Boone, North Carolina, and Valdese High School, Valdese, North Carolina, which were located approximately fifty miles apart.

The two classes were supervised by different teachers at different periods of the day. The Appalachian High School typewriting class was taught third period for fifty-seven minutes, which preceded the lunch period; and the Valdese High School typewriting class was taught during the sixth period for fifty-five minutes, which was the last period of the day.

The students continued to work under a normal situation without knowledge of being participants in an experimental study. This observation continued for a period of ten consecutive lessons, during which three 5-minute timed writings of the same material¹ were administered to each group for

¹D. D. Lessenberry and T. James Crawford, 20th Century Typewriting (sixth edition; Cincinnati: South-Western Publishing Company, 1952), p. 87. See Appendix for copy.

error classification purposes. The writer worked with the students daily beginning January, 1958, and continued for eight weeks, two weeks of which were observational and six weeks of directive supervision, experimental and remedial exercises, and effective evaluation of the writer's procedure.

Since some authorities in this area expressed the belief that typewriting errors should be studied with the students when the error occurs, the writer surmized that it would be more useful and beneficial if each class, since it was rather large, was divided into two approximately equated groups based on intelligent quotient, age, and school grade. The total errors for individual students were not considered when equating the groups and were selected by lot. These two groups will be referred to as the control and the experimental groups.

For tabulation purposes, the two experimental groups were combined into one experimental group; the two control groups were combined into one control group. Each group consisted of twenty-two students, two from the senior class, eight from the junior class, and twelve from the sophomore class. Their ages ranged from fifteen years to seventeen years. The intelligent quotient median for the experimental and the control groups were 96.5 and 96.3, respectively. The two groups, experimental and control, have been tabulated in Table I, page 18, and in Table II, page 19, respectively.

TABLE I
 REPRESENTATION OF EXPERIMENTAL GROUP ACCORDING
 TO INTELLIGENT QUOTIENT, AGE, SEX,
 AND SCHOOL GRADE

	Student	Intelligent Quotient	Age	Sex	School Grade
1.	Student A	115	16	Female	Junior
2.	Student B	115	15	Female	Sophomore
3.	Student C	109	16	Female	Junior
4.	Student D	104	15	Female	Sophomore
5.	Student E	104	16	Female	Junior
6.	Student F	103	16	Female	Junior
7.	Student G	103	16	Female	Junior
8.	Student H	101	15	Female	Sophomore
9.	Student I	99	15	Female	Sophomore
10.	Student J	98	17	Male	Senior
11.	Student K	97	16	Female	Junior
12.	Student L	96	15	Male	Sophomore
13.	Student M	93	17	Male	Junior
14.	Student N	92	17	Male	Junior
15.	Student O	91	15	Female	Sophomore
16.	Student P	89	17	Male	Senior
17.	Student Q	89	15	Female	Sophomore
18.	Student R	88	15	Male	Sophomore
19.	Student S	88	15	Male	Sophomore
20.	Student T	82	15	Male	Sophomore
21.	Student U	78	15	Female	Sophomore
22.	Student V	76	15	Male	Sophomore

TABLE II
 REPRESENTATION OF CONTROL GROUP ACCORDING
 TO INTELLIGENT QUOTIENT, AGE, SEX,
 AND SCHOOL GRADE

	Student	Intelligent Quotient	Age	Sex	School Grade
1.	Student A'	116	16	Female	Junior
2.	Student B'	116	15	Male	Sophomore
3.	Student C'	109	16	Female	Junior
4.	Student D'	104	15	Male	Sophomore
5.	Student E'	104	16	Female	Junior
6.	Student F'	103	16	Male	Junior
7.	Student G'	103	16	Female	Junior
8.	Student H'	101	15	Male	Sophomore
9.	Student I'	98	15	Female	Sophomore
10.	Student J'	98	17	Male	Senior
11.	Student K'	97	16	Female	Junior
12.	Student L'	96	15	Male	Sophomore
13.	Student M'	93	16	Female	Junior
14.	Student N'	93	17	Female	Junior
15.	Student O'	90	15	Female	Sophomore
16.	Student P'	89	17	Male	Senior
17.	Student Q'	89	15	Female	Sophomore
18.	Student R'	88	15	Female	Sophomore
19.	Student S'	88	15	Female	Sophomore
20.	Student T'	83	15	Male	Sophomore
21.	Student U'	81	15	Female	Sophomore
22.	Student V'	76	15	Female	Sophomore

The experimental group was presented with the lessons as planned in the state adopted textbook² with emphasis on error analysis, while the control group was instructed to type the exercises in the state adopted textbook as directed by the regular teacher. The textbook, however, does contain some remedial measures.

The Procedure for the Experimental Group. The textbook material was presented following the instructions as given in the teachers' manual.³ Time allotments were kept within limits prescribed by the text on each type of drill and the "aim" of each lesson was presented and class procedures to encourage its accomplishment were maintained.

For an example, Lesson 73, page 104 of the textbook, presented the following material:

Lesson 73

Machine Adjustments: Use a 70-space line; 5-space paragraph indentation; single spacing. 1 minute

Conditioning Practice

A dozen lawyers object to the remarkable question of the grave expert. 5 minutes

Bart Barbour is bright, but Robert Webster brought home better grades.

²Ibid.

³D. D. Lessenberry and T. James Crawford, Manual for 20th Century Typewriting (sixth edition; Cincinnati: South-Western Publishing Company, 1952).

There is work for you to do. Your job is to learn to do it with ease.

Typing For Control

15 minutes

Directions: Type each sentence without error or type each sentence three times if you make an error in the typing.

A frank statement was made by the man from Alaska about Alaskan needs.

Bart Barbour read the beautiful lines from Robert Burns's best poetry.

Can such a characteristic as conceit check the achievement of success.

Donald said he hoped he had developed a good device for handling feed.

Every earnest endeavor helps me to achieve the best results in a test.

Frequently officials refuse to inform the unfortunate of their defeat.

George Gregory greatly exaggerated the meaning of the Governor's talk.

Harry Johnson, the British author, emphasized good writing techniques.

I will not risk intervention by having this evidence seized in a raid.

Judge Johnston was prejudiced in his judgment of your just objectives.

Knowledge taken from books makes you seek to know more and shirk less.

Let all citizens realize fully the actual value of the public schools.

Most of the members of their summer community come from Massachusetts.

Timed Writing

Directions: Take two 5-minute writings on the paragraphs of
Timed Writing 60, page 87. 15 minutes

Skill Maintenance

Directions: Take a series of 1-minute writings on the
following sentences. 5 minutes

Check to see if you are wasting time in getting ready to do your work.

It is a law of the mind that each of us will reap just what each sows.

In presenting this lesson, the students were instructed to type the drills to the best of their ability and to keep in mind the correct position at the typewriter and to concentrate on the copy. Often the period ended before the class had completed the drills; when this occurred, the lesson was continued into the next class meeting.

The students were permitted to type the "Conditioning Practice" as soon as they were seated at the typewriters. At the end of five minutes, the "Typing For Control" was introduced through a brief presentation. As students typed the sentences, the instructor examined the personal readiness and operating technique readiness of each student. A technique check sheet⁴ was used to evaluate the student's position at the typewriter and his operating technique.

⁴D. D. Lessenberry, Technique Check Sheet (Syracuse: L. C. Smith and Corona Typewriters, Inc.). See Appendix for copy.

During this inspection, if any faulty techniques were observed the instructor discussed it with the student at that time of his incorrect technique, and explained to him by demonstration or illustrations the correct procedure. Errors in technique were recorded on the pupil's records when the instructor returned to his desk.

At the end of fifteen minutes, the "Timed Writing" exercise was introduced while the students made machine and paper adjustments. The students were urged to type at a controlled rate in order that they might eliminate their errors. The instructor said, "Eyes on your copy. Ready. Type." At the end of five minutes, the call of "Time" was given. The students were allowed to rest for approximately thirty seconds before starting the second timed writing. The same procedure was followed for the second writing. The students were allowed to check these writings for errors.

When the practice papers were turned in, notations of errors were written on them, checked for unmarked errors, and returned to the students. Each student was informed of his notations and was made to feel free to question any comment or correction made by the instructor. Remedial typewriting drills⁵ were distributed to each member to be used for

⁵Nathaniel Altholz and Gertrude Altholz, Modern Typewriting Practice (New York: Pitman Publishing Corporation, 1951), pp. 205-303. See Appendix for copy.

corrective progress exercises to strengthen the weaknesses of each student. These drills were used until the error was apparently eliminated.

Individual instruction and personal conferences were used to bring the student into closer focus with causation of the error and selection of the best technique for elimination of the error. Extra remedial drills were given repeatedly, checked for mastery of errors, and plans for future individual adaptation made.

As noted in the directions for typing the "Skill Maintenance," four 1-minute timed writings were administered in the same procedure as the five-minute timed writings. At the end of each writing, each typist made a rapid check of his accuracy accomplishment and prepared for the next writing.

Instructional Block 6, which included lessons 76 through 85, was entirely devoted to technique improvement and was covered in the manner which is presented in the text. These drills included "Conditioning Practices," a technique known as "stroke-level and word-recognition level of typing," skill building procedures, guided writings, and direct dictation.

Each student kept a record of his timed-writing-error frequencies twice a week on an error analysis chart which was

presented to him at the beginning of the experiment.⁶ This chart was used in discovering which errors or difficulties tend to be persistent and in analyzing the cause and immediate remedial exercises by the teacher and the student.

The Procedure for the Control Group. The material was presented to the control group by the regular teacher. In presenting the lessons to the control group, the textbook presentation was the same as the experimental group with the exception of remedial instruction after error analysis. For instance, in Lesson 73, the directions stated that each sentence was to be typed without error or typed three times if an error was made in the typing. The control group was instructed to type these sentences only twice disregarding errors. All sentences were checked by the students and all errors were encircled.

In presenting the other divisions of this lesson, the same procedure was followed as for the experimental group except the timed writings and individual remedial practices. When the timed writings were taken, the control group was instructed to put a clean sheet of paper in the machine and

⁶D. D. Lessenberry and T. James Crawford, 20th Century Typewriting (fifth edition; Cincinnati: South-Western Publishing Company, 1947), p. 56. See Appendix for copy.

the material to be copied was indicated. No extra emphasis was expressed in giving these instructions. No indication was given to drive for accuracy but to strive for control. No individual comments were made to students pertaining to errors and no corrective measures were administered throughout the experiment.

The control group covered the material more quickly than the experimental group and was given additional material for credit. The two groups stayed together on assignments throughout the entire experiment.

In both experimental and control groups, the students were encouraged to establish accepted techniques.

Accuracy of stroke was held up as the ideal, but "perfect copies" were not required.

In making regular check-ups, the same material was used by all members of both groups.

The finality of the procedure included three 5-minute timed writings on consecutive days of the same material administered in the onset of the procedure for conclusiveness and individual progress and achievement. The results of these remedial practices and how they compared are shown in Chapter IV.

CHAPTER IV

RESULTS OF THE EXPERIMENT

All of the pupils in this experiment were enrolled as first year typewriting students.

I. PRE-TEST ERROR TYPES AND FREQUENCIES

From the pre-test, the writer has recorded and classified the errors into types and frequencies which are as follows:

Right hand keyboard error. This error occurred 124 times by the experimental group and 89 times by the control group.

Substitution of hands on keyboard. This error occurred 120 times by the experimental group and 61 times by the control group.

Left hand keyboard error. The experimental group made 190 errors and the control group made 115 errors.

Transposition. This error occurred 57 times by the experimental group and 34 times by the control group.

Lack of spacing between words. The experimental group made 44 errors and the control group made 37 errors.

Additional spaces between words. The experimental group made 28 errors and the control group made 32 errors.

Omission of letters or characters. This error occurred 71 times by the experimental group and 56 times by the control group.

Additional letters or characters. This error occurred 16 times by the experimental group and 20 times by the control group.

Reading error. Nine errors were made by the experimental group and 11 errors were made by the control group.

Lack of horizontal placement of letters. The experimental group made 4 errors and the control group made 14 errors.

Anticipating letters. This error occurred 18 times by the experimental group and 8 times by the control group.

Unclassified. The experimental group made 6 errors and the control group made 7 errors.

The most common types of errors were right hand keyboard errors and left hand keyboard errors in the experimental and control groups.

The total-type-frequency errors on the pre-test by the experimental group were 687 and the control group's total

frequency errors were 484.

The classifications and frequencies of errors on pre-test by experimental and control groups are shown in Table III, page 30, and Table IV, page 31, respectively.

II. CAUSES OF ERRORS, REMEDIAL PRACTICES, AND RESULTS

From a study of the types of errors, the writer has come to the conclusion that the causes of errors, remedial practices, and results of the typewriting errors are as follows:

Nails too long. Student D and Student G persistently struck the wrong keys; as d for c, 3 for e, s for x, p for i, o for l. The writer noticed the errors and noticed the length of the typist's fingernails. The students were shown how long fingernails interfered with typewriting and the writer suggested to them that they keep their fingernails neat but short. Student G trimmed her nails immediately, but Student D refused to shorten hers because of the opinion that fingernails were not the primary cause of her errors. The writer discussed the problem with the student and by explanation and demonstration, convinced Student D of the necessity of short fingernails. Student D cooperated whole-heartedly with the writer after evaluating her opinion

TABLE IV
CLASSIFICATION AND FREQUENCIES OF
ERRORS BY CONTROL GROUP ON
PRE-TEST

Student	Right Hand Keyboard Errors				Substitution of Hands on Keyboard				Left Hand Keyboard Errors				Transposition				Lack of Spacing Between Words				Additional Spaces Between Words				Omission of Letters or Characters				Additional Letters or Characters				Reading Errors				Lack of Horizontal Placement of Letters				Anticipating Letters				Unclassified				Total of Types
	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T					
Student A'	4	1	2	7	4	1		5		3	3		3	2	2	7	2	1	3	1	2	1	4	2			2					1	1											2	2			35	
Student B'									1	1	2													2	1	3										1	1											6	
Student C'	2	1	3	6					3	1	4																	3	3							1	1			1	1			15					
Student D'					5	2	1	8						1	1		1	1	2		1		1													1	1			1	1			14					
Student E'		4	3	7	3	2	1	6	3	2	3	8	4		4			3	1		4	2	3	2	7	1		1	1		1	1							1	1			39						
Student F'	3	1	3	7	1		1	2	1	3	2	6		1	1									1	1							1	1	1	3					1	1			21					
Student G'	1		1	2		1		1	1	1	2			1	3	4	2				2	2		1	3	2					2				1				1	1			18						
Student H'			2	2			2	2	2	3	5		2	1	2	5								1	1	1			1	1		1	2			2				1	1	2		20					
Student I'	1	5	2	8	2	1	1	4	2	3	2	7						1	1		1	1	2					2				1	1	1	2	3									27				
Student J'	2		3	5		1		1	5	4	2	11		1	1		2	1	1	4		1	1	1	2					1	1	2		2				1	1			29							
Student K'	3			3			2	2	4	1	1	6	1	1	2			1	1	2					2	3	1	6	1		1	1		1	1			1	1			25							
Student L'									1	2	3							1	1	2						1	1	1	1	2					1	1							9						
Student M'	2	2	2	6	1	2		3	2	1	3			1	1			1	1																		1				1	1			15				
Student N'		1	1	2					4	1	2	7		2	2					1		2	3		1	2			1	2		2												17					
Student O'			1	1			2		2				1				1																												7				
Student P'	6		4	10	1	2	3	6	2	3	2	7												1	3	4														1	1			28					
Student Q'	1	2	2	5	2	4		6	7	5	12		2	2	3	7	3	1	5	9	1	1	2	4	2		2		1				1												46				
Student R'	1	1		2	6	5		11	3	1	1	5						3	3		1		1									1	1											23					
Student S'		1	2	3					3	1	4							2	1	3					3	5	2	10									1	1							21				
Student T'	2	1	1	4					1		1						1	1	1	3	2	6	1	1	2		1	1	2	1	1	2		1				1	1			18							
Student U'	2	3	2	7					2	4	2	8	1		1			1	1	1	1	3	2	2	4	2	1	1	4					2				2	2							30			
Student V'	1	1		2	1		1	2	6	2	8						1	1				2	2	1	1	2	2					2				1	1	2						21					

in relation to her weaknesses. The two students reduced their errors. Student D reduced her errors from 24 to 9 errors. Student G reduced her errors from 27 to 14 errors.

Typewriting desk cluttered. In analyzing Student O's papers, the writer noticed that in several instances there was an accumulation of characters. The machine was checked for mechanical defects by the writer but none could be found. The writer determined the difficulty to be an object which was hindering the carriage from moving freely. The writer discovered that the student frequently placed his coat and books on the left side of the desk while typewriting. The student was shown how the coat and books handicapped the carriage and prevented it from moving freely. Emphasis was placed upon the importance of keeping an orderly, neat desk. Another arrangement of the materials on the desk was demonstrated and how advantageous it would be rather than the present method employed. It was emphasized that the typist's desk is the place of work and a neat, well-arranged desk enhances a feeling of success, relaxation, and freedom of manipulation. Students were urged to place only the typewriting book to the right of the machine and the paper, pencil, and other essential materials to the left of the

machine. A system should be established to enable the student to feel more secure, and; therefore, have pride in the appearance of his surroundings as well as the typed material. When the student refrained from placing his books and coat on the typewriting desk, the accumulation of characters was eliminated.

Returning the carriage nonconventionally. Student A was frequently readjusting the position of his typewriter. In analyzing his errors, the writer noticed that the right hand bottom row of keys were constantly being missed. The writer examined the student's procedure of typewriting and realized that whenever the typewriter was turned left, the errors would appear. The writer examined the student's procedure of returning the carriage. The return was done slowly which resulted in a change of the position of the typewriter and caused the striking of the bottom row of keys on the right hand difficult. The writer demonstrated to the student how to push the lever until the slack was taken up and then throw the carriage with a quick wrist motion. The student was urged to check the position of his typewriter frequently and to be sure he was centered with the j key. The result of this practice showed a reduction from 13 errors to 2 errors.

Striking the space bar nonconventionally. Five students were frequently adding spaces between words. The writer noticed that each student was striking the space bar with a sluggish, dragging stroke. The students were told to strike the space bar with a quick, firm stroke and with the thumb being lifted instantaneously. Each student was shown how his particular method of striking the space bar was causing the additional spaces between words. The accepted method of striking the space bar was illustrated and the students were advised to practice this method. Sentences composed of numerous small words were used for practice drills. The result of this practice showed a reduction from 18 errors to 3 errors.

Height of desk or chair. Student K was habitually making errors on the first and third row of keys on the right and left hands. The writer analyzed these errors to establish a pattern, but was unable to do so. Carefully observing the student, the position of the wrists were found to be resting on the frame of the typewriter. Student K had been assigned to a desk which was twenty-six inches high and a chair which was unsteady and too low for the height of the desk and the student. Another position of the wrists was demonstrated to the student and permitted

the student to evaluate which method was the best. The writer illustrated to the student the reason why he was having difficulty in striking the keys when the wrists were resting against the frame of the typewriter. A chair of the adequate height was secured for the student. The raising of the chair resulted in a reduction of errors from 22 to 4 errors.

Student L was in the habit of making the same errors as Student K. The writer observed the position of Student L's wrists and found that they were continuously lowered. The height of his desk was twenty-seven inches. The writer changed Student L to a desk twenty-eight inches high in the belief that the desk was too low. After a week of observation and experimentation, the writer returned Student L to his former desk because the errors were still repeated and his wrists were still lowered. A higher chair was secured. After a week had elapsed, Student L's left hand was in the accepted position, but the student needed additional instruction for his right wrist. The accepted position of the wrists and fingers were constantly demonstrated throughout this individual instruction. The right wrist never reached the position that the writer had anticipated but the final position was much improved over the former position. The errors on the left hand were

reduced from 9 errors to 2 errors, and the right hand errors had been reduced from 3 errors to 1 error.

Anticipation of letters. Four students were habitual anticipators of letters such as stutents, drpp, figgers, pvevent, eoocors. The writer analyzed their work and discovered that persistent errors were present. The students were urged to watch the copy closely and to reduce their speed slightly. The writer told them not to rush, but type with a relaxed, even-flowing touch. Concentration on the copy was stressed. Particular exercises were assigned for the students who repeated errors. The result of these remedial measures showed a reduction from 14 errors to 3 errors.

Lacked coordination of right and left hands. The majority of the students in the experimental group was experiencing difficulty with control over fingers on the right and the left hands. Some of the students would confuse the o and i, m and n, p and o, e and r, a and s, b and v, r and t, . and ,, s and d, k and l. The writer noticed that most of the errors were occurring on adjacent fingers or on adjacent keys. Drills were assigned practicing typewriting words written entirely with the right and the left hands such as red, you, was, him, tax, ill,

set, lip, bad, oil, get, joy, was, pin, are, mop. Drills were assigned typewriting alternate-hand words such as and, big, man, for, pay, six, air, own, out, sir, the, may, but, sit, did. These practice drills provided for the establishment of proper finger control rather than perfect copy, which reduced errors from 314 to 120 errors.

Faulty coordination between like fingers on opposite hands. Each student in the experimental group was troubled with this error. They were using the right finger but the wrong hand; as in striking a for i, e for i, o for w, f for j, d for k, n for b, g for h, t for y. A careful analysis was made to determine error combinations most frequently transposed. Practice drills for the correct letter were given. Words were given which contained the correct letter. The finger of one hand was taught separately from the same finger on the other hand. After mastery of these strokes, drills containing both the correct and the incorrect letters were given. Eight students eliminated these errors entirely. Ten students showed only one or two errors. Three students made four errors. One student made six errors. A reduction from 120 errors to 34 errors was achieved.

Failure to depress shift key firmly. Four students noticed that their capitals were either too high or too low.

The writer examined the students' method of depressing the shift key and found that they were not depressing the key all the way down before striking the letter key. The writer emphasized the fact that the shift key must be depressed fully while the key was being struck. The effects of striking the keys when the shift key is going down or coming up was demonstrated. Exercises in shifting such as aA, bB, cC, dD, eE, fF, gG, hH, iI, Jj, Kk, Ll, Mm, Nn, Oo, Pp, Qq, and sentences containing many capital letters were practiced. The result of this practice showed a reduction from 14 errors to 3 errors.

Nonconventional fingering. Student L was not using acceptable fingering on both hands. The left hand was striking the c key with the f finger. The m key on the right hand was struck with the k finger. The . key, ^ key, and / key were struck with the j finger. Student L was in the habit of striking the . for the . and the / for the .. The writer worked with the left hand first since there was only one error in fingering. Student L relaxed his right hand in his lap and was shown the accepted method of fingering for the c key. The student was allowed to become familiar with the new method of fingering for several minutes. The writer slowly pronounced letters for the student to type.

The student was allowed to look at the keys in the beginning, but after the second lesson, his eyes were kept on the copy. The same procedure was used for the right hand. After the correct fingering was familiar to the student, special words and sentences using these particular strokes were used. The result of this practice showed a reduction of errors from 12 errors to 3 errors.

Student U was using unacceptable fingering on the right hand. The m key was struck by the k finger, the l key and ; key were struck by the j finger. The left hand was placed in the student's lap during the fingering correction. The entire right-hand strokes were reviewed to discover if any additional keys were being struck unacceptably. The writer demonstrated and illustrated the acceptable fingering for the specific strokes and he permitted the student to evaluate his present method of striking the keys. Each key was learned thoroughly and slowly before advancing to another key. After the fingering on the right hand had been corrected and learned, both hands were used to type short sentences and gradually complex paragraphs. The result of this practice showed a decrease in errors from 7 to 3 errors.

Forgetfulness. Student S was frequently piling the keys on the third row with the right hand. The writer observed the student several class periods and noticed that

the carriage was occasionally being returned with the right hand. The writer commented to the student about returning the carriage. The student was unaware of his returning the carriage with the right hand, but was aware of the piling of keys on the right hand. After demonstrating to the student how his right hand was striking the third row of keys on returning to the home row, the accepted procedure for returning the carriage was demonstrated and the student was urged to be more careful about returning the carriage with the left hand. Student S was familiar with the accepted procedure for returning the carriage and practiced conscientiously. A result of this practice reduced his errors from 7 to 1 error.

Speed development. Nine students were in the habit of making too frequent transposition errors; as anc for can, prupose for purpose, het for the, fro for for, it of for of it, is it for it is. The writer was of the opinion that each student who had frequent transposition errors should read more carefully, and he was also of the opinion that care should be exercised regarding the speed of reading. The student should think of the word being typed instead of spelling the word. Rhythm was stressed as an aid in overcoming this type of error.

The writer determined by observation, analysis and tabulation the sources of the difficulties. Exercises were given to overcome these difficulties; as th, er, io, ei, wa, mn, ur.

During the next to the last week of the experiment, the writer observed that the majority of students who were making transposition errors had reduced them slightly, except one student, Student Q, who was still persistently making this type of error. Since the writer's time was limited, he decided to experiment with the student in a different manner. Instead of reducing his speed and holding him back, the writer decided to encourage Student Q to type at his fastest rate. In the beginning, short words were dictated to the student. After words, short phrases were given; then, short sentences. The student was under pressure to type at a rapid rate. The writer felt that this rapid typewriting would aid the student in reaching his desired speed. This procedure was used for five days. The student was then permitted to type at his own speed for one day without the writer supervising him. Three final timed writings were administered on the following days. The nine students had decreased their errors from 51 to 22 errors. Student Q had reduced his errors from 13 to 6 errors.

Reading too far ahead of fingers. Five students were constantly omitting words, phrases, or lines. The writer was able to learn that each of these students were fast readers and were trying to type as fast as they read. Each student was urged not to read too far ahead of his fingers; the eyes should probably be not farther ahead than the next word. The writer impressed upon the students the importance of keeping their eyes on the copy because of the possibility that a line might be skipped or repeated, thus avoid seeing the same word on the other line and typewriting it. Difficult practice exercises were given to stress concentration and to prevent reading too far ahead of the words being typed. These remedial practices showed a reduction from 9 errors to 2 errors.

Uneven stroking. In analyzing individual papers, the writer noticed that three students had cramped and indistinct typewriting characters. When these errors were noted, the writer observed the stroking of the keys by the typist. The writer noticed two students were striking the keys with a sluggish stroke. One student was having difficulty with the a, z, j, /, and q keys. These keys were hit with the little fingers which were weak fingers.

The writer demonstrated to each student the accepted method of striking the keys and to get the fingers away from the keys rapidly. The writer showed each student his mistakes so that he could do remedial practice. Controlled speeds were emphasized to regulate the movement and the touch of the keys. Practice drills for weak fingers were used. Individual analysis of the work was recommended by the writer in order that the students could determine which letters were giving them the most trouble. Errors were minimized from 12 errors to 2 errors.

Eleven students were frequently omitting letters in words. The writer noticed that the typists were not giving equal weight to each stroke. The students were shown the effects of typewriting with uneven stroking. The writer pointed out that more attention should be given to each stroke. Each key should be struck with the same amount of force. Student's work was analyzed to determine the letter or letters omitted to discover if there were a pattern of errors. Practice drills were used which contained the particular letter or letters. When there was weak fingering, drills were given to eliminate it such as sentences which included g, w, a, z, x, /, ., i, p. Drills for the right hand, left hand, or alternate-hand drills were used

as deemed necessary. The students' stroking resulted in an even-flowing movement which reduced errors from 60 to 12 errors.

Eight students continuously failed to space between words. The writer examined the student's method of striking the space bar to determine if equal force was allowed for striking the bar. The students were not allowing enough time for striking the space bar. Students were advised to be sure that the same amount of time was allowed for space bar strokes as for any other keyboard strokes. Rhythmic stroking was stressed to give each stroke equal amount of force. The accepted method of striking the space bar was illustrated and demonstrated by the writer. The students slightly reduced their speeds until they were able to become familiar in striking the space bar with confidence. As a result, errors were reduced from 35 to 9 errors.

Nervousness in finger movements. The writer, during his observation, learned that two students were under tension and nervous while typewriting. Often the students were repeating the same letter which had previously been typed; as droppp, little, theem, this. Five students would add additional strokes in words; as samer, bing, goesd, sampley, lampe, dropt, martch. The students were shown the dangers

of watching the individual letters that appear on the paper as he types. Continuity of action was stressed. Emphasis was placed on reading for phrase and sentence thought rather than word thought. The student was convinced of the necessity of watching the copy closely, in order that he might not lose his place. The writer tried to develop a situation in which the students felt relaxed while typewriting. The errors were charted and the repeated errors were noted. Special drills on words containing those letters were assigned. In several instances, too high a speed was attempted; therefore, stroke drills were assigned in order to decrease the student's speed slightly. As a result of the remedial measures, the seven students reduced their errors from 10 to 2 errors.

The writer believes that numerous errors were caused by brief lapses in attention or memory, carelessness, fatigue, pressure, ignorance, or emotional disturbances. These errors cannot be corrected by manual remedial practice and should be ignored unless they occur too frequently. It is the constant, common error that needs classification and study today. Since there are constant errors, accidental or variable errors, these variabilities will never be eliminated entirely, but they should be constantly scrutinized by the teacher.

III. FINAL TEST ERROR FREQUENCIES

After six weeks of diligent practice with each student in overcoming his specific and constant errors, the following results were achieved:

Right hand keyboard error. The experimental group had 51 errors, showing a decrease in errors of 59 per cent and the control group had 88 errors, showing a decrease of 1 per cent in errors.

Substitution of hands on keyboard. The experimental group had 34 errors, showing a decrease in errors of 72 per cent and the control group had 44 errors, showing a decrease of 28 per cent in errors.

Left hand keyboard error. This error occurred 69 times by the experimental group, which was a decrease of 64 per cent in errors and the control group made 94 errors, which was a decrease of 18 per cent.

Transposition. The experimental group made 35 errors, which was a decrease of 39 per cent in errors and the control group made 37 errors, which was an increase of 9 per cent.

Lack of spacing between words. The experimental group had 20 errors, showing a decrease of 55 per cent in

errors and the control group had 47 errors, showing an increase of 27 per cent in errors.

Additional spaces between words. This error occurred 13 times by the experimental group, which was a decrease of 54 per cent in errors and the control group made 27 errors, showing a decrease of 16 per cent in errors.

Reading error. The experimental group had 6 errors, which was a decrease of 33 per cent in errors and the control group had 16 errors, which was an increase of 45 per cent in errors.

Lack of horizontal placement of letters. This error occurred 6 times by the experimental group, which was an increase of 50 per cent in errors and the control group made 13 errors, which was a decrease of 7 per cent in errors.

Anticipating letters. This error occurred 19 times by the experimental group, which was an increase of 6 per cent in errors and the control group made 12 errors, showing a decrease of 50 per cent in errors.

Additional letters or characters. The experimental group had 14 errors, which was a decrease of 13 per cent in errors and the control group had 24 errors, which was an increase of 20 per cent in errors.

Unclassified. The experimental group had 8 errors, showing an increase of 33 per cent in errors and the control group had 3 errors, showing a decrease of 57 per cent in errors.

The most common types of errors of the experimental and the control groups on the final test were the right hand keyboard errors and the left hand keyboard errors.

The total-type-frequency errors of the experimental group on the final test were 306 frequencies, which was a decrease of 55 per cent over the pre-test frequencies. The frequencies of errors of the control group on the final test were 472, which was a decrease of 2 per cent over the pre-test.

In the pre-test of the experimental group, the number of words typed ranged from 574 words to 261 words and an average of 467.9 words was achieved. The control group's number of words typed ranged from 669 words to 347 words on the pre-test with an average of 481.9 or 14 words above the average for the experimental group. The final test ranged from 713 words to 348 words in the experimental group and attained an average of 556.3 words. The control group's final test ranged from 720 words to 372 words with an average of 576.8 words or 20.5 words above the average for the experimental group.

The number of errors made by the experimental group on the pre-test ranged from 55 errors to 15 errors while the control groups' errors ranged from 46 errors to 6 errors. The average number of pre-test errors made by the experimental group was 31.2, which was 9.2 errors above the average of the control group. The number of errors made on the final test by the experimental group was from 26 errors to 6 errors. The control group resulted in a range from 45 errors to 6 errors. The experimental group averaged 13.9 errors on the final test; the control group averaged 21.5 errors. The decrease of errors in the experimental group ranged from 89 per cent to zero. In the control group, fourteen students decreased errors while eight students increased errors. The range of errors for the control group was from plus 143 per cent to minus 53 per cent.

As to the average number of words typed per error, the experimental group on the pre-test typed 15 words per error; the control group typed 21.9 words per error. On the final test, the experimental group typed 40 words per error; the control group typed 26.9 words per error. These figures indicate that the experimental group was the better typist.

Table V, page 50, and Table VI, page 51, show the classification and frequency of error types on the final test for the experimental and control groups.

TABLE VI

CLASSIFICATION AND FREQUENCIES OF ERRORS BY
CONTROL GROUP ON FINAL TEST

Student	Right Hand Keyboard Errors				Substitution of Hands on Keyboard				Left Hand Keyboard Errors				Trans-position				Lack of Spacing Between Words				Additional Spaces Between Words				Omission of Letters or Characters				Additional Letters or Characters				Reading Errors				Lack of Horizontal Placement of Letters				Anticipating Letters				Unclassified				Total of Types								
	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T	1	2	3	T													
Student A'	1		1	2	1			1	4	1	1	6	3	2	1	6					1	1			1	1			2	2			1	3											1	1	2										23
Student B'	2			2					1	2	2	5													1				1																								8				
Student C'	1	1	1	3					1	1		4	1			1																	1	1															10								
Student D'					3	1	2	6	1	2	2	5					1	1	2						2				2	1			1				1	1							1	1							18				
Student E'	2	3	4	9	3	1		4	2	1	1	4	1	1		2		1	1	2	1				3				2	2			1	1			1	1			1	1			1	1			1	1			30				
Student F'	2		1	3					2	2	4		1	1		2																	1	1											1	1							12				
Student G'	1	1	1	3					1	1		4	1	2		3									1	1			2																				13								
Student H'	2	4	1	7	2				3	5		12	2	2	2	6		1	1	1					1	2			1	2	3	1	1	1			2	1			1				2	1	3						42				
Student I'		1		1		1			3	1	3	7													1	1							3	3															13								
Student J'		1	3	4	1				1	1	2		1	1		2		1	2	3		1			1	1			1	1	1	1	2	1			1				1	1							20								
Student K'									1	1	2		2	2		4					1				1				4	3	1	8																	15								
Student L'	2			2									1	1							1				1								1	1	1		1												6								
Student M'	1	2		3					1	1		2		1		1													1																1	1							10				
Student N'	1			1					2	1	1	4	1	2		3													1	1			1	1															11								
Student O'			3	3	2				1	3											1				1				6				1	1							1	2			3								17				
Student P'	4	2	1	7	1				1	2	3						1	1							1	1							1	1	2						1	1	1	1	2								18				
Student Q'	2	6	4	12	1				1	2		7	2	1		3	5	3	8		3				3	4			1	5			1	1	2		2	1	3										45								
Student R'	1	2	1	4	1	5	2	8	4	3	1	8	1	2		3		2	2						3	7	1	11					1	1			2	2	1		1								40								
Student S'	2		1	3	1				1	2		6					3	4	2	9	1				1				1	1	2		1	1	2														25								
Student T'	1		2	3	1				2	1		3						1	1	3					1	4			1		1	1									1								15								
Student U'	6	6	1	13	1				1	3		4					3	6	3	12		2	3		5	3	6	15	1												3	3							54								
Student V'	2	1		3					4	4		1	1					5	5	1	2				3	1	2	4	2				3	5			1				1	1	2						27								

Complete tabulation of frequencies of errors on pre-test and final test are shown in Table VII, page 53.

Table VIII, page 54, and Table IX, page 55, show the per cent of decrease or increase of total words typed and total errors on pre-test and final test for the experimental and the control groups.

During the experiment, fifty-seven new errors occurred in the experimental group which were not noticeable previously, while eighty new errors occurred in the control group. The new errors were of the following types:

1. Uneven spacing between lines.
2. Irregular right-hand margin.
3. Lacking familiarity with fourth row of keys.
4. Failure to capitalize.
5. Repeating words already typed.
6. Strike-overs.
7. Nonconventional spacing after punctuation marks.

The most frequent new type of error in the experimental and control groups was lacking familiarity with fourth row of keys. Table X, page 56, shows the frequencies of the new types of errors for the experimental and control groups on the final test.

TABLE VII

FREQUENCIES OF ERRORS ON PRE-TEST AND FINAL TEST ACCORDING TO TYPES
OF ERRORS BY EXPERIMENTAL AND CONTROL GROUPS

Types of Errors	FREQUENCIES IN			
	EXPERIMENTAL GROUP		CONTROL GROUP	
	Pre-Test	Final Test	Pre-Test	Final Test
	Per Cent Decrease or Increase		Per Cent Decrease or Increase	
Right hand keyboard error	124	51	89	88
Substitution of hands on keyboard	120	34	61	44
Left hand keyboard error	190	69	115	94
Transposition	57	35	34	37
Lack of spacing between words	44	20	37	47
Additional spaces between words	28	13	32	27
Omission of letters or characters	71	31	56	67
Additional letters or characters	16	14	20	24
Reading error	9	6	11	16
Lack of horizontal placement of letters	4	6	14	13
Anticipating letters	18	19	8	12
Unclassified	6	8	7	3
Totals	687	306	484	472
Averages	31.2	13.9	22	21.5
				- 2%

TABLE VIII

PER CENT OF DECREASE OR INCREASE OF TOTAL WORDS TYPED AND
TOTAL ERRORS ON PRE-TEST AND FINAL TEST
BY EXPERIMENTAL GROUP

Student	PRE-TEST		FINAL TEST		Per Cent of Decrease or Increase in Errors
	Three 5-Minute Tests Number of Words Typed	Number of Errors Made	Three 5-Minute Tests Number of Words Typed	Number of Errors Made	
Student A	574	55	713	17	- 69%
Student B	531	15	597	13	- 13%
Student C	573	21	660	10	- 52%
Student D	552	31	603	18	- 42%
Student E	504	25	588	17	- 32%
Student F	552	30	633	12	- 60%
Student G	495	52	591	19	- 63%
Student H	471	22	552	14	- 36%
Student I	513	24	609	16	- 33%
Student J	477	19	555	10	- 47%
Student K	486	44	612	17	- 61%
Student L	294	19	357	10	- 47%
Student M	447	25	546	14	- 44%
Student N	402	68	453	8	- 88%
Student O	426	15	477	15	- C.
Student P	492	55	567	6	- 89%
Student Q	468	42	534	26	- 38%
Student R	555	16	630	9	- 44%
Student S	423	38	591	19	- 50%
Student T	312	34	417	15	- 56%
Student U	261	20	348	14	- 30%
Student V	486	17	606	7	- 59%
Totals	10,294	687	12,239	306	- 55%
Average Number of Words Typed Per Error	467.9	31.2	556.3	13.9	
		15		40	

TABLE IX

PER CENT OF DECREASE OR INCREASE OF TOTAL WORDS TYPED AND
TOTAL ERRORS ON PRE-TEST AND FINAL TEST
BY CONTROL GROUP

Student	PRE-TEST		FINAL TEST		Per Cent of Decrease or Increase in Errors
	Three 5-Minute Tests Number of Words Typed	Number of Errors Made	Three 5-Minute Tests Number of Words Typed	Number of Errors Made	
Student A'	556	35	669	23	34%
Student B'	645	6	672	8	33%
Student C'	444	15	519	10	33%
Student D'	423	14	402	18	29%
Student E'	669	39	720	30	23%
Student F'	453	21	537	12	43%
Student G'	633	18	672	13	28%
Student H'	588	20	603	42	110%
Student I'	633	29	660	20	31%
Student J'	558	27	627	13	52%
Student K'	510	25	531	15	40%
Student L'	534	9	594	6	33%
Student M'	657	15	693	10	33%
Student N'	369	17	468	11	35%
Student O'	612	7	648	17	143%
Student P'	420	28	534	18	30%
Student Q'	347	46	459	45	2%
Student R'	558	23	579	40	74%
Student S'	606	21	624	25	19%
Student T'	450	18	489	15	17%
Student U'	567	30	618	54	80%
Student V'	369	21	372	27	29%
Totals	10,601	484	12,690	472	-
Average Number of Words Typed Per Error	481.9	22	576.8	21.5	2%
		21.9		26.9	

TABLE X
 FREQUENCIES OF NEW TYPES OF ERRORS DEVELOPED
 DURING THE EXPERIMENT BY THE EXPERIMENTAL
 AND CONTROL GROUPS ON THE FINAL TEST

New Types of Errors	Experimental Group	Control Group
Lacking familiarity with fourth row of keys	16	21
Nonconventional spacing after punctuation marks	4	13
Failure to capitalize	9	8
Strike-overs	11	12
Uneven spacing between lines	6	7
Repeating words already typed	7	13
Irregular right-hand margin	4	6
Totals	57	80

CHAPTER V

SUMMARY OF THE EXPERIMENT, CONCLUSIONS, AND RECOMMENDATIONS

The writer's affiliation with business education revealed that high school typewriting courses did not offer sufficient error improvement exercises, techniques, and critical error analysis. If the necessary factors for the acquisition of typewriting skill were being achieved from the students' typewriting experiences, more satisfactory results would be acquired. From the writer's experience and the literature available, one of the most evident and disturbing weaknesses of the typist was lack of accuracy.

The writer used the best supervisory procedure to his knowledge to bring about the most beneficial use of students' time. As a possible solution to the problem, (1) to determine the types of individual typewriting errors; (2) to make studies of individuals to determine causes of errors; (3) to eliminate these errors by corrective measures; and (4) to evaluate the effectiveness of the corrective measures in relation to the errors at the beginning of the study to the errors at the end of the study, an experiment was set up with equated high school classes in first year typewriting to study this problem. The experimental group was presented the lessons as

planned in the state adopted textbook with emphasis on remedial practices. The control group instruction was presented as planned in the state adopted textbook. Time gained by the omission of remedial drills was devoted to additional assignments. Records were kept to determine the relative progress. Both groups were encouraged to establish correct manipulation techniques.

Identical material was used by all members of both groups in making regular check-ups. In determining errors, the writer considered only the typed material on the paper. The results of the check-ups indicated that the experimental group averaged 7.6 fewer errors. The best record made by an individual in the experimental group was a reduction from 55 errors to 6 errors; the control groups' best record was from 27 errors to 13 errors.

The first year typewriting students made twelve types of errors on the tests administered. In the experimental group, six kinds of errors ranked highest in frequency. These errors were as follows: (1) 190 left hand keyboard errors, (2) 124 right hand keyboard errors, (3) 120 errors on substitution of hands on keyboard, (4) 71 errors on omission of letters or characters, (5) 57 transposition errors, and (6) 44 errors in lacking to space between words. These six types of errors account for 88 per cent of all errors made by

the experimental group. The other six types of errors comprised 12 per cent of the total errors.

In determining the causes of errors, the writer discovered fifteen causes. The most frequent causes of errors were faulty coordination between like fingers on opposite hands, lack of coordination of right and left hands, uneven stroking, development of new levels of speed, and nervousness and tension in finger movements.

Conclusions. The results of this experiment indicated that remedial measures are effective in eliminating errors whenever the cause has been accurately determined.

As stated in the reverse form, the results of this experiment indicated that students in their first year of training make numerous typewriting errors which are unnecessary and must be eliminated if future progress is to be ascertained.

The results of the timed writings showed that students in the first year of training definitely benefitted from the use of corrective practices in the areas of their respective weaknesses. The pursuance and adaptation of correct procedures and techniques in correct typewriting practices insure potential perfection of the typewriting skills.

The writer concluded that the time spent on error analysis in a class of high school students during the first year of typewriting training would be better spent on additional practice in alleviating the weaknesses. Special emphasis would not have to be shifted or thwarted; therefore, the acquisition of correct techniques would be more profitably advanced.

It appeared evident that the high intelligent quotient students made more errors due to speed and over-anticipation while the low intelligent quotient students made less errors at a lower rate of speed. However, the results of this experiment indicates that the low intelligent quotient student can progress and learn relatively as much as the high intelligent quotient student. In this experiment, speed was not reduced as a result of remedial exercises.

In the opinion of the writer, motivation was superior in the experimental group, cooperation was higher, interest was keener, and the students appeared more relaxed, more sincere, and more devoted to learning to typewrite. If these factors had not been present in this experiment, the results might have been different.

The typewriting students made twelve different kinds of errors. The left hand keyboard errors were the most important because of their persistency and frequency.

In studying the types of errors, student techniques, and individual progress, the writer was able to distinguish fifteen causes of errors. These were not the only causes of errors, but they were the only ones the writer was able to establish and classify. The causes of errors were found to be of a similar nature in both high schools. The writer concluded that primarily the causes of errors will be similar in first year typewriting training classes in other schools.

In the opinion of the writer, this study has several limitations. If a larger number of students had been considered in the preliminary, this study might have had more validity. However, the number of students chosen was representative of all the typewriting classes.

Since time was a factor in the experiment, the writer felt that not enough time was allotted to the analysis of errors, corrective measures, and determining whether or not the evident causes had been discovered, and the errors had been eliminated.

In equating the classes, total errors for each student were not considered. If total errors had been classified into types of errors, this would have allowed equal errors for students in each group.

Suggestions for Further Investigation. Further investigation is needed to determine whether or not this same process would show the same results under different instructors and different teaching methods. It would also be valuable to determine the effectiveness of second year typewriting remedial measures in lieu of first year typewriting remedial measures.

A problem which could result in some very practical information would be to determine the effectiveness of student analysis of errors not under supervised direction.

Another problem which could give very practical information would be to determine whether or not the method of presentation of the keyboard has any effect on the types of errors students make.

Recommendations. In light of the findings of this experiment, the writer recommends to typewriting instructors that error analysis be a vital part of their daily instruction during the first year of typewriting training in the high school.

Teachers should keep a record of student errors, and evaluate them in relation to the student's daily progress.

Teachers should encourage individual students to use their knowledge to discover what techniques they are performing

incorrectly. The student should be motivated in self-analysis of his typewriting. More efficient performance could be realized if the teacher is alert to individual mannerisms, inhibitions, deficient typewriting skills, and inculcates a desire and pride in individual analysis and progress.

MILLERS

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APPENDIX

FIVE-MINUTE TIMED WRITING

The right kind of practice is that which is done with a purpose. You have to know what you are expected to gain from typing a word, a line, or a problem once or any number of times. It does no good just to fill the paper with typed words. If you are typing for speed, make the fingers go quite fast even if this means typing without entire control for the time being. If you are typing for control, drop back to the speed at which you can type with ease; then give the fingers right and definite directions, and you will be amazed at your typing power.

Your fingers will do what you tell them to do. If you do not tell them what you want them to do, they may fly all over the keyboard with an excess of motion and without any gains in skill. You can usually keep them flying with control when you realize just when to push yourself in your typing and just when to drop back to get control. It may not be quite so easy to keep the fingers flying where you want them to go, but this can be done when you learn to type on the right practice level and when you use the appropriate typing techniques. Most of all, practice with a purpose. That is the kind of practice that builds power.

TECHNIQUE CHECK SHEET

I. Position At The Typewriter

A. Body

1. Sit nearer the typewriter
2. Sit away from the typewriter
3. Lean from the hips toward the typewriter
4. Shoulders erect
5. Feet on the floor
6. Body well balanced
7. Body relaxed, but not sagging

B. Eyes: On The Copy

C. Wrists

1. Lower the wrists
2. Raise the wrists

D. Fingers

1. Curve the fingers more
2. Fingers curved too much
3. Fingernails too long

E. Thumbs

1. Curve right thumb over space bar
2. Curve left thumb under palm

II. Operating Technique

A. Machine Adjustments

B. Paper Insertion

C. Key Stroke

1. Use the snatch stroke (do not punch the keys)
2. Touch must be more even
3. Use a lighter stroke (quick get-away)
4. Incorrect fingering
5. Use a more forceful stroke (well controlled)
6. Do not raise the fingers too high
7. Relax the muscles of shoulder, forearms, wrists

D. Rate

1. Too fast
2. Too slow
3. Jerky

E. Carriage Throw

1. Too much arm motion
2. Sluggish movement
3. Return the hand to the home keys quickly
4. Throw the carriage with more even power

F. Shift Key

1. Depress more firmly
2. Use the little finger to depress the Shift Key;
hold the other fingers hovering over their
home key positions

G. Remove paper: Use The Paper Release**H. Accuracy**

1. Spell the words
2. Develop a more even rhythm

ERROR-ANALYSIS CHART

Name of Student	Class												Name of Teacher																												
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	.	,	-	?	Space										

REMEDIAL EXERCISES

Group I: Letters of the Alphabet and Marks of Punctuation

Exercise 1 (A)

1. has car pay coal yard want trade stand shall market happen regard
2. A few days ago we again advertised a sale of coats and wraps.
3. All the repairs had been made and the car was ready for delivery.
4. It gives us great pleasure to forward several samples of paper.
5. Each patient is given the same careful attention as in the past.

Exercise 2 (B)

1. cab buy big able both best above doubt about number object become
2. Our object is to establish better business relations between us.
3. Both buildings burned, but they are probably not a total loss.
4. My brother Ben thought it best to subscribe to the building fund.
5. When we publish the book we shall probably use a brown binding.

Exercise 3 (C)

1. act can cut much once each piece force touch school record direct
2. I can credit your account or send you a check for the difference.
3. The case has become so difficult that we scarcely expect to win.
4. The fact is the company cannot give this service free of charge.
5. Once an officer is elected, we let him exercise complete control.

Exercise 4 (D)

1. and had red side hard food spend field under second around indeed
2. Although the day was cold, windows and doors were left wide open.
3. Dine and dance at the Roadside House every Saturday and Sunday.
4. Edna needs a dictionary, so that she can look up difficult words.
5. The dealer was driving an old sedan that he planned to deliver.

Exercise 5 (E)

1. new she let cent near week weigh after never behind people before
2. They spent a little more money than they had intended to invest.
3. I believe that we had better let her see the letter we received.
4. You need never for one moment fear that we shall overcharge you.
5. Perhaps you expect prices to rise, but I believe they will fall.

Exercise 6 (F)

1. far off few left self half often after chief inform profit effect
2. Left to himself for a few hours, he finally found a solution.
3. We are fully aware of how difficult it is to effect this change.
4. First, I refuse to allow friendship to affect my decision.
5. In fact, you will often find it profitable to offer free samples.

Exercise 7 (G)

1. big ago get sign gave page large again begin danger figure regret
2. The engineer regarded crossing the bridge as far too dangerous.

3. I shall be glad to go again, as the house shows signs of neglect.
4. We thought that the girls might be along with the groceries.
5. The messenger gave both packages to a girl who signed for them.

Exercise 8 (H)

1. who had why help both show happy which north method should though
2. When the weather permits, the ship will sail to the north shore.
3. We happen to have on hand a hundred reams of heavy white paper.
4. Neither of these chairs is worth as much as the man is charging.
5. He will show you how to use the polish to obtain a high luster.

Exercise 9 (I)

1. oil sit air live idea fine field issue begin differ winter engine
2. The firm provided quick repair service by a skilled mechanic.
3. I received a bit of reliable information about his activities.
4. If I had any such intention, I have long since given up the idea.
5. It is impossible to find a safe investment that will yield more.

Exercise 10 (J)

1. joy job jar just jump judge major juice object junior injury.
2. The majority of the men have no objection to joining the group.
3. He rejected the offer of an adjustment for personal injuries.
4. He jumped and struck his hand, injuring the joint of his finger.
5. The junior class joined us to celebrate this joyous jubilee.

Exercise 11 (K)

1. ask sky oak book knew week black drink check market
thanks remark
2. He knew the background of the kind of people to whom
he spoke.
3. He would like us to make another attempt to take
stock next week.
4. Kindly ask the clerk whether this skirt material will
wrinkle.
5. I shall go back to the bank at two o'clock to make a
deposit.

Exercise 12 (L)

1. law fly let rule talk will while until value follow
public simple
2. We told you it would be difficult to sell the lot at
full price.
3. It is likely that the usual quality will no longer be
available.
4. Let me call Paul on the telephone and tell him about
the deal.
5. We cannot possibly deliver the coal until early in
the fall.

Exercise 13 (M)

1. met arm rim form time warm among limit women moment
number common
2. I remember many remarks he made that seemed strange
at the time.
3. We may, for example, employ more men in winter than
in summer.
4. It may be as much as a month or more before we hear
from them.
5. I recommend this as a modern home, with a good plumbing
system.

Exercise 14 (N)

1. man not win mean sign turn learn round train within
reason nation
2. It is my opinion that we need not be concerned about
competition.

3. Many men have obtained personal or business loans at this bank.
4. Kindly notify him that I cannot obtain the information sooner.
5. The purchase of savings bonds is a sound financial investment.

Exercise 15 (O)

1. for you too work stop move motor short could ought profit dollar
2. The road to town has been closed on account of flood conditions.
3. You acknowledge that you owe the amount shown on the invoice.
4. You owe it to yourself to take advantage of this opportunity.
5. Our colored cotton is sold at notion counters in most stores.

Exercise 16 (P)

1. pay cap lip deep hope open place cheap speak employ report people
2. We expect a special shipment of paper the latter part of April.
3. We simply cannot depend on a cheap product to serve our purpose.
4. Our shop aims to supply superior products at popular prices.
5. He probably plans to put these imported platters on special sale.

Exercise 17 (Q)

1. quite quote equal quick equip liquid frequent quit acquainted
2. I question whether it is worth quoting on so small a quantity.
3. We frequently find it necessary to submit quotations quickly.
4. In consequence, we can quote values you cannot equal anywhere.
5. Six and a quarter yards are not quite adequate for the quilt.

Exercise 18 (R)

1. air are nor care part burn cover front large direct master rather
2. The experiment proves that direct advertising is worth the cost.
3. Certainly our course is clear; we must look for other markets.
4. Under the circumstances, we regret we cannot accept your order.
5. As a rule, we try to censor articles appearing in our paper.

Exercise 19 (S)

1. was his set also last wise sweet start trust person answer custom
2. First consider the cost before starting to act on his suggestion.
3. This store sells shoes, slippers, and socks at reasonable prices.
4. For several reasons we suspect his answer is not an honest one.
5. We wish you would test our service to see how satisfactory it is.

Exercise 20 (T)

1. put get art list both test built doubt after health commit better
2. It is about time for you to stop trying to control every detail.
3. Thank you for taking the trouble to investigate the situation.
4. If it is not too much trouble, please wait until next Tuesday.
5. Part of the time was spent in pointing out the faults in style.

Exercise 21 (U)

1. cut out buy much your upon about guy trust usual summer brought
2. Under the circumstances you should have no serious difficulty.

3. Unless you have a discount card, we must charge out your sum.
4. During the summer we usually offer wonderful values in furs.
5. The usual business circular could be drawn up in about an hour.

Exercise 22 (V)

1. even very have move drive voice every serve provide improve live
2. On several occasions we have been able to give you this service.
3. We believe you must have received delivery early in November.
4. My visit to the governor evidently proved to be a very good move.
5. We have, however, investigated their service very carefully.

Exercise 23 (W)

1. low own way away view wish power owing where toward follow when
2. We know who wrote the letter and we will answer the complaint.
3. The lawyer wants to know how much power is wasted in this way.
4. Deposits which are made now will draw interest at two per cent.
5. While you were away last week, I did whatever work was necessary.

Exercise 24 (X)

1. tax six box next exist exact exert extra mixed luxury except
2. We expect to send six boxes of canned goods by express next week.
3. He expressed the opinion that we should expand our export market.
4. Next week we shall begin recording extra charges on index cards.
5. The extra fixtures were forwarded by express in two large boxes.

Exercise 25 (Y)

1. any why boy only play body story party young system employ beyond
2. They always carry completely equipped bags of the best quality.
3. Early in the day he is generally busy getting the mail ready.
4. Everybody is fully aware of the necessity of an early delivery.
5. The lawyer says he does not know why you had to pay so much.

Exercise 26 (Z)

1. zone size dozen seize prize razor hazard realize citizen organize
2. We realize that they were so authorized to seize the property.
3. The citizens were puzzled by his zeal and amazed at his energy.
4. An organization of this size must systematize all its records.
5. The citizens asked the officials to recognize their organization.

Exercise 27 (Comma)

1. I believe, therefore, that we, and not they, are responsible.
2. On this occasion, he said, he wanted to thank them, one and all.
3. I set out at once, making my way very slowly, carefully, over the ice.

Exercise 28 (Semicolon)

1. The neighborhood was poor; the house was old; the room was small.
2. The family is gone; the old house is closed; now all is quiet.
3. The change has been beneficial for us; it has also helped you.

Exercise 29 (Question Mark)

1. Is he the right man for a position of so much responsibility?
2. What qualities make a good leader? Does this man possess them?
3. Why did not the account balance? What mistake had he made?

Exercise 30 (Colon)

1. I have one question to ask: Why are you so eager for the change?
2. His reason as for leaving was as follows: he had never meant to stay there.
3. I need the following information: name, date, age, file number.

Exercise 31 (Exclamation Point)

1. How slowly they moved! At what cost was each step forward taken!
2. Oh! you have let them go without me! Stop them! Call them back!
3. I looked for one rare stamp--I found three! What a surprise!

Exercise 32 (Dash)

1. You and I have a great heritage--the heritage of a free democracy.
2. The piano was large--very large--too large to fit into the room.
3. He ran out--down the hall--up the steps--through the open door.

Exercise 33 (Parentheses)

1. We rose bright and early (or at any rate, early) that morning.
2. They referred to the house (our house) as their legal property.

Group II: Left-Hand and Right-Hand Words

1. red you war him tax ill set lip bad oil get joy was
pin are mop
2. safe look case noon rest upon were pull grew kill
best lion read
3. text July rate milk dear only feet join date lump
fact link card
4. poppy trade imply state onion serve pupil exact union
brave hilly
5. regret million exceed opinion career minimum address
monopoly
6. plump estate uphill baggage poplin steadfast pumpkin
afterwards

Group III: Alternating-Hand Words

1. and big man for end pay six air own cut sir the may
but sit did
2. girl work make turn coal name them such hand duty when
down paid
3. than both pair town sign land firm with half city sign
also held
4. corn dish rich hang lake melt ivory eight shake panel
shelf field
5. right usual spend laugh world slept quake chair shape
panel fight
6. their sight rifle slant burns civic bushel chapel
embody formal
7. social handle dismay quench sleigh profit enamel
island emblem
8. visual penalty auditor problem entitle ancient memento
signals
9. quantity neighbor chairman ornament busybody amendment
proficient

Group IV: Double Letters

1. good beef deep roof cool miss wood ebbs need soon adds
door
2. steep annul cheer feels fully alley annex spool apply
berry stood
3. sweep allow tooth arrow essay utter troop error asset
flood witty
4. steel annoy bloom offer added broom carry ditto upper
occur funny

5. follow common manner supply horror matter appeal
errand assist
6. accept afford beggar teller winner ballot effect
allege choose
7. little coffee summer occupy lesson vacuum cotton
piazza letter
8. accent canned affair differ dagger sullen effort
wallet school
9. attack attach appear barrel tissue assert arrive
attend assign
10. bazaar robber stucco sudden suffer access esteem
waffle wholly
11. rubbing succeed account address fifteen taffeta
suggest trolley
12. baggage swallow million ammonia current vanilla
suppose appoint
13. collect stammer shipped support command channel
apparel connect
14. approve correct dresser affects planned battery
possess proceed
15. terrible assemble allotted tomorrow dissolve blizzard
occasion
16. announce applause surround opposite pressure currency
possible
17. accuracy struggle alliance commerce druggist collapse
annually
18. different efficient aggravate immediate beginning
surrender
19. dismissal committee necessary preferred attribute
essential
20. supplement correspond expression accumulate remittance
bookkeeper
21. abbreviate commission disappoint appreciate difficulty
challenged
22. accommodate communicate opportunity accordingly
cooperation

Group V: Moving from One Bank of Keys to Another Without
Touching the Guide Keys

1. my fun face pony menu fume lump lung hymn muff erect
thumb break
2. twice check human broad count voice lunch brain pound
broil round
3. brick elect price under since brush bring humor found
bread uncle

4. enemy force place sound clung brass piece doubt music
ounce amuse
5. forbid chance number harbor Sunday record junior affect
mutual
6. amount barber branch immune center hunger recent advice
murmur
7. clumsy summer direct office strung object rhythm become
minute
8. expect except muslin cancel myself medium punish mutter
radium
9. recent lumber sprung ground tramp select autumn success
account
10. We expect to continue manufacturing brass plumbing until
June.
11. We have recently had an opportunity to effect certain
economies.
12. I assume that you will respect my advice and check the
account.
13. I remained at the office until six trying to balance the
account.
14. No doubt your brother will volunteer to connect our
large radio.
15. Under the circumstances, this place will serve as my
studio.
16. The sound of the tuning of the musical instruments was
annoying.
17. My uncle expects to succeed in canceling the debt by
December.
18. We have recently had great success by using a special
process.
19. Unless we deny the rumor at once, it is certain to
affect prices.
20. We shall continue to serve our country at every
opportunity.
21. My brother and I spent last summer on a farm in the
country.
22. Since you have brought up the subject, you must face
the truth.
23. We have found the lumber we received recently of poor
quality.
24. The balance of his account shows he is too much in debt
to us.
25. The junior partner told the clerk to issue a summons at
once.
26. I have no doubt that he will object to the amount of the
bill.

Group VI: Facility Word Practice

Two-Letter Words

an	be	he	it	of	to
am	by	if	me	on	up
as	do	in	my	or	us
at	go	is	no	so	we

Three-Letter Words

act	ask	far	law	oil	saw	try
add	bad	few	let	old	say	two
age	big	for	low	one	see	use
ago	boy	get	man	our	set	was
air	but	has	may	out	she	way
all	buy	had	men	owe	sir	who
and	can	her	met	own	sit	why
are	day	his	new	pay	six	yes
arm	end	how	not	red	too	you

Four-Letter Words

able	door	grow	left	name	same	told
also	down	half	less	near	seem	true
away	each	hand	life	need	seen	turn
back	easy	hard	like	next	send	upon
bank	east	have	line	note	sent	very
best	even	head	list	once	ship	view
call	feel	home	made	plan	sort	went
cost	girl	land	most	rule	then	work
date	give	last	move	safe	they	year
dear	gold	late	much	said	this	your

Five-Letter Words

about	cover	large	plain	stand	until
above	doubt	learn	point	start	usual
among	equal	money	reach	table	weigh
begin	every	month	ready	teach	where
bring	force	offer	shall	these	whose
cause	fully	other	small	third	world
cheap	great	ought	sound	those	worth
clear	house	piece	spend	trust	wrong
color	issue	place	spent	under	young

Six-Letter Words

affect	degree	expect	method	regard
amount	demand	family	minute	regret
answer	depend	figure	modern	report
appear	desire	detail	nation	result
before	direct	future	number	second
bought	dollar	happen	office	simple
change	during	indeed	people	street
charge	effect	inform	person	strong
course	employ	letter	profit	system
credit	enough	little	rather	toward
custom	except	market	reason	within

Seven-Letter Words

account	country	improve	present	special
another	deliver	inquire	product	station
balance	develop	machine	provide	subject
because	example	measure	purpose	success
believe	express	morning	quality	suggest
between	forward	neither	receive	thought
brought	further	nothing	regular	through
certain	general	perfect	require	weather
company	however	perhaps	service	whether
connect	hundred	picture	several	without

Longer Words

business	pleasure	question	attention
complete	position	straight	condition
consider	possible	thousand	gentlemen
interest	probably	together	important

Group VII: Facility Phrase Practice

to us	by the way	from them
to be	by way of	from that
to do so	in the way	from time
to do it	in the past	for a long
if it is	we ask you	on your part
if he is	you sent us	for our part
if you will	they must do	on the part
if you can	he must be	to take part

to be sure we feel sure you may be sure	agree with you you will agree that if you agree	our letter in this letter no longer than
all of them one of these a few of those	as soon as as soon as we can as soon as possible	please ship please send us please let me
as much as as well as as we have seen	I hope you will I think you are I hope that you	some time some time next early this
once more many more more or less	on sale for sale sale price	for the purpose for this same time
at some time some time ago a long time ago	I am glad glad to hear I shall be glad	I have you will we received

Group VIII: Facility Sentence Practice

1. Let me see.
2. Buy the set.
3. We are sure of it.
4. Try to get us a car.
5. We note what you say.
6. Try to see it our way.
7. They live in this city.
8. He may go in a day or two.
9. You were wrong about the size.
10. The idea seems to be a good one.
11. The fact is that you are too slow.
12. We shall let you know in a few days.
13. We carry your size at our other store.
14. In any case, the reason is quite clear.
15. If you must go, you ought to leave at once.
16. We are very sorry that we are out of that size.
17. We shall send you a check on the first, as usual.
18. We shall be happy to serve you in our new store.
19. You will agree that we must consider quality first.
20. We expect to learn more about the purpose of the drive.
21. They expect to receive a supply within the next few days.
22. We agree that from your point of view you are quite right.